

**What is claimed is:**

1. A signal processing apparatus, comprising:  
a radio radar unit emitting/receiving radio  
5 waves in different directions;  
a parameter extraction unit extracting a  
plurality of parameters relating to desensitization  
from received radio waves obtained from different  
directions; and  
10 a determination unit determining whether or  
not received power of received waves indicates  
desensitization of radio radar using a threshold  
not constant at least for one parameter in a  
multidimensional space representing the plurality  
15 of parameters using coordinate axes.
2. The apparatus according to claim 1, wherein  
said parameter is an average of a normalized  
reception value of an object in a FM-CW mode.  
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3. The apparatus according to claim 1, wherein  
said parameter is an average received power  
value for a velocity of a vehicle of an observer in  
a CW mode in all directions and a difference  
25 between a maximum value and a minimum value of a

received power value in each direction.

4. The apparatus according to claim 1, wherein  
said parameter is an average received power  
5 value for a velocity of a vehicle of the apparatus  
in a CW mode in all directions and a standard  
deviation or a variance of received power in each  
direction.
- 10 5. The apparatus according to claim 1, wherein  
said parameter is an average received power  
value for a velocity of a vehicle of an observer in  
a CW mode in all directions and a coefficient value  
of an approximate curve of a distribution along a  
15 direction of an average received power value in  
each direction.
6. The apparatus according to claim 1, wherein  
said radio radar has a CW mode using radio  
20 waves of continuous waves and an FM-CW mode using  
frequency modulated radio waves.
7. The apparatus according to claim 6, wherein  
a received power value obtained by a radio  
25 radar in the FM-CW mode is normalized into a

received power value when a mobile object is within a predetermined distance.

8. The apparatus according to claim 7, wherein  
5 an estimated total number of mobile objects captured by a radio radar is computed by performing slice processing on the normalized and received power value, and it is determined that desensitization of the radio radar is detected when  
10 the estimated total number of the mobile objects equals or exceeds a predetermined value.

9. The apparatus according to claim 8, wherein  
it is determined that desensitization is  
15 detected when a distance between a maximum value and a minimum value of the normalized and received power value is equal to or smaller than a predetermined value.

20 10. The apparatus according to claim 6, wherein  
it is determined whether or not desensitization is detected using a parameter obtained in a CW mode and a parameter obtained in an FM-CW mode, and it is determined that  
25 desensitization of the radio radar is detected when

desensitization is detected in both modes.

11. The apparatus according to claim 1, wherein  
said determination unit comprises a first  
5 counter for counting a value each time it is  
determined that desensitization is detected, and a  
second counter for counting a value each time it is  
determined that desensitization is not detected,  
and it is determined that desensitization is  
10 detected when the first counter exceeds a  
predetermined value.

12. The apparatus according to claim 11, wherein  
at least a first and a second threshold are  
15 used in determining that desensitization is  
detected, and counting step values of the second  
and first counters are increased respectively when  
an average received power value is larger than the  
first threshold and the average received power  
20 value is smaller than the second threshold.

13. A signal processing method, comprising:  
emitting/receiving radio waves using radio  
radar in different directions;  
25 extracting a plurality of parameters relating

to desensitization from received radio waves obtained from different directions; and

determining whether or not received power of received waves indicates desensitization of radio radar using a threshold not constant at least for  
5 one parameter in a multidimensional space representing the plurality of parameters using coordinate axes.

10 14. The method according to claim 13, wherein  
said parameter is an average of a normalized reception value of an object in a FM-CW mode.

15 15. The method according to claim 13, wherein  
said parameter is an average received power value for a velocity of a vehicle of the apparatus in a CW mode in all directions and a difference between a maximum value and a minimum value of a received power value in each direction.

20 16. The method according to claim 13, wherein  
said parameter is an average received power value for a velocity of a vehicle of an observer in a CW mode in all directions and a standard  
25 deviation or a variance of received power in each

direction.

17. The method according to claim 13, wherein  
said parameter is an average received power  
5 value for a velocity of a vehicle of an observer in  
a CW mode in all directions and a coefficient value  
of an approximate curve of a distribution along a  
direction of an average received power value in  
each direction.

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18. The method according to claim 13, wherein  
said radio radar has a CW mode using radio  
waves of continuous waves and an FM-CW mode using  
frequency modulated radio waves.

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19. The method according to claim 18, wherein  
a received power value obtained by a radio  
radar in the FM-CW mode is normalized into a  
received power value when a mobile object is within  
20 a predetermined distance.

20. The method according to claim 19, wherein  
an estimated total number of mobile objects  
captured by a radio radar is computed by performing  
25 slice processing on the normalized and received

power value, and it is determined that desensitization of the radio radar is detected when the estimated total number of the mobile objects equals or exceeds a predetermined value.

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21. The method according to claim 20, wherein it is determined that desensitization is detected when a distance between a maximum value and a minimum value of the normalized and received power value is equal to or smaller than a predetermined value.

22. The method according to claim 18, wherein it is determined whether or not desensitization is detected using a parameter obtained in a CW mode and a parameter obtained in an FM-CW mode, and it is determined that desensitization of the radio radar is detected when desensitization is detected in both modes.

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23. The method according to claim 13, wherein in said determination step, a first counter value for use in counting a value each time is used to determine that desensitization is detected, and a second counter value for use in counting a value

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each time is used to determine that desensitization is not detected, and it is determined that desensitization is detected when the first counter exceeds a predetermined value.

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24. The method according to claim 23, wherein at least a first and a second threshold are used in determining that desensitization is detected, and counting step values of the second and first counters are increased respectively when  
10 an average received power value is larger than the first threshold and the average received power value is smaller than the second threshold.

15 25. A program used to direct a computer to execute a process comprising:

emitting/receiving radio waves using radio radar in different directions;

extracting a plurality of parameters relating  
20 to desensitization from received radio waves obtained from different directions; and

determining whether or not received power of received waves indicates desensitization of radio radar using a threshold not constant at least for  
25 one parameter in a multidimensional space



representing the plurality of parameters using coordinate axes.